May 22, 1939

Dr. Warren Weaver
The Rockefeller Foundation
49 West 49th Street
New York, New York

Dear Warren:

I am enclosing a carbon copy of our proposed budget for 1939-1940, which is being communicated to you separately by Professor Millikan. I wish to take this opportunity also to tell you what I think of the progress which has been made this year with the aid of the Rockefeller Grant.

Dr. Niemann is doing very well in his work, and we all feel that we were very fortunate to be able to add him to our staff. He is working especially on the major problem of the nature of the fatty substances of brain and nerve tissue, and also has several other problems under way, with the collaboration of other staff members and graduate students.

Dr. English seems to have finally succeeded in his difficult task of isolating a plant wound hormone. During the last year he has been collaborating mostly with Professor Haagen-Smit, and his success is probably due in considerable part to Haagen-Smit's extensive experience in isolation techniques. English has found that various cofactors are involved, in addition to the hormone that he has isolated, and it is probable that a good bit of interesting work can now be done in this field.

Dr. Buchman has continued work on the physiological action of analogs of vitamin B_1 getting in this way clues to the mechanism of B_1 activity. He has also been synthesizing cyclopropene and cyclobutene and attempting the synthesis of cyclobutadiene, which is a compound of great theoretical interest.

Dr. Koepfli has continued his collaboration with Went, and has synthesized a number of substances with auxin activity. He is now attacking a new problem, the isolation and investigation of the active principle of marijuana, in collaboration with Professor Haagen-Smit. Dr. Winstein and Professor Lucas have continued work on the Walden inversion and related problems. Dr. Winstein has been given a National Research Fellowship for the coming year, and will work with Professor Bartlett at Harvard.

In the molecular structure field the most significant progress has been made in the x-ray attack on the structure of simple substances related to proteins. Up to a year ago there had been no complete crystal structure determination made of any amino acid or peptide, or any other substance closely related to proteins. At that time Dr. Corey, Senior Fellow in Research here, completed his complete structure determination of diketopiperazine, which gave very interesting information regarding the peptide bond. A few months ago Dr. Corey and Mr. Albrecht completed their similar investigation of α-glycine, the first amino acid for which a structure determination has been made. Dr. Corey, Dr. Levy, and Dr. Hughes are now working on other amino acids and peptides.

I think that it would be wise to gather this information as quickly as possible, and we are planning to construct some additional apparatus, including a mechanical integrating microphotometer and a Fourier calculator of new design, in order to speed up the work. Dr. Corey is going to devote his efforts largely to x-ray work on proteins themselves from now on.

Nothing very interesting has turned up in the hemoglobin field so far this year, but Theorell is going to be here next month, and is bringing

his supply of cytochrome C with him for magnetic investigation. Dr. Harrison Davies, whose National Research Fellowship in Medicine has been renewed for the year 1939-1940, has begun the synthesis of hemoglobin analogs, involving porphyrins other than protoporphyrin, and it is likely that some very interesting results will come out of his work.

The electron diffraction investigations have led to the determination of the structures of many molecules of intermediate complexity, including substances such as pyrrole which enter into the structure of substances of biological importance, but as yet no substance of biological importance has been studied by this method.

There has not been much theoretical work done in the laboratory this year. I published in the December Physical Review a small contribution on the nature of the bonds in metals, and, since the visit of Schwarzenbach last summer, I have been devoting some effort to the attempt to develop a theory of the color of organic molecules, without much success, however.

With best regards, I am

Sincerely yours,

Linus Pauling

LP/jr
Enclosure